

where the values of  $\Gamma_t$  are

$$\Gamma_t = \left[ \left( \frac{1 + R_t}{1 + \bar{R}_t} \right) \prod_{j=1}^N \frac{(1 + \bar{w}_{jt} \bar{r}_{jt})(1 + w_{jt} \bar{R}_t)}{(1 + w_{jt} r_{jt})(1 + \bar{w}_{jt} \bar{R}_t)} \right]^{\frac{1}{2N}},$$

where  $r_{jt}$  is a portfolio return for sector  $j$  for period  $t$ ,  $\bar{r}_{jt}$  is a benchmark return for sector  $j$  for period  $t$ ,  $w_{jt}$  is a weight for  $r_{jt}$ ,  $\bar{w}_{jt}$  is a weight for  $\bar{r}_{jt}$ ,  $R$  is determined by

$$R = \left[ \prod_{t=1}^T (1 + R_t) \right] - 1$$

and  $\bar{R}$  is determined by

$$\bar{R} = \left[ \prod_{t=1}^T (1 + \bar{R}_t) \right] - 1; \text{ and}$$

processing the data indicative of attribution effects for issue selection  $(1 + I_{it}^{G, Vestek})$  and processing the data indicative of attribution effects for sector selection  $(1 + S_{it}^{G, Vestek})$  to generate data indicative of

$$\frac{1 + R}{1 + \bar{R}} = \prod_{t=1}^T \prod_{i=1}^N (1 + I_{it}^{G, Vestek})(1 + S_{it}^{G, Vestek}), \text{ where}$$

$\frac{1 + R}{1 + \bar{R}}$  is the portfolio performance.

#### REMARKS:

Claims 1-8 stand rejected under 35 U.S.C. 101 on the ground that the claimed invention is directed to non-statutory subject matter. For the following reasons, Applicant respectfully contends that claims 1-8 and new claims 9-12 are directed to statutory subject matter.

The Examiner contends that original claims 1-8 are non-statutory "because they are directed solely to an abstract idea without practical application in the technological arts." No claim has been rejected as being unpatentable over prior art under 35 U.S.C. 102 or 35 U.S.C. 103.

Applicant notes initially that each of claims 5 and 6 recites a “computer system” including a “processor” (programmed in a specified manner) and a “display device coupled to the processor.” Such claims are clearly directed to a useful “machine” (or a “useful improvement thereof”) as recited in 35 U.S.C. 101, and thus are clearly directed to statutory subject matter. Thousands of issued U.S. patents include claims to computer systems (or data processing systems) including various inter-connected components, such as programmed processors and display devices coupled to processors.

An example of a statutory claim to a data processing system (for managing a financial portfolio) is claim 1 of U.S. Patent 5,193,056, the patent in suit in State Street Bank & Trust Co. v. Signature Financial Group Inc., 47 USPQ2d 1596 (Fed. Cir. 1998). This claim is to a “data processing system for managing a financial services configuration of a portfolio” comprising several components including a “computer processor means for processing data,” a “storage means for storing data on a storage medium,” and various “means for processing” data pertaining to the portfolio. In State Street Bank & Trust Co., the U.S. Court of Appeals for the Federal Circuit reversed a U.S. District Court judgment of invalidity (for claiming subject matter not encompassed by 35 U.S. C. 101) of this claim. The Court of Appeals for the Federal Circuit specifically held that the claim is directed to a “machine” made up of specific structures, and is thus directed to proper statutory subject matter under 35 U.S.C. 101. The Court of Appeals for the Federal Circuit further held that the claimed invention was not an unpatentable mathematical algorithm, because it produced a “useful, concrete and tangible result” (namely a “share price” of a financial portfolio that is “accepted and relied upon by regulatory authorities and in subsequent trades”). See 47 USPQ2d 1596 at 1601.

Consistent with the noted holdings of State Street Bank & Trust Co. v. Signature Financial Group Inc., claims 5 and 6 are clearly directed to a “machine” which is statutory subject matter under 35 U.S.C. 101, and such machine is not an unpatentable mathematical algorithm because it produces a “useful, concrete and tangible result” (namely, a displayed result of a specified performance attribution computation).

As explained in the specification of the present application, a performance attribution computation of the type recited in the claims usefully compares the returns of a financial portfolio against those of a benchmark to determine the portfolio's excess return (performance relative to the benchmark) in a manner that accurately attributes the excess return to various effects resulting from active decisions by the portfolio manager. The result of a performance attribution computation of the type recited in the claims is useful, concrete and tangible since it quantifies how well a specified financial portfolio has been managed relative to a specified benchmark over multiple time periods (e.g., by determining that the performance of a portfolio is "X%" of a specified benchmark over the last "Z" months, and "Y%" of another specified benchmark over the same period). Such a portfolio performance result is useful by investors, institutional portfolio managers, and others, as evidenced by the flourishing market in this country (with many millions of dollars of sales annually) for asset management software and services that determine portfolio performance in response to specified returns of financial portfolios over multiple time periods.

Claims 1-4 and new claims 9-12 of the present application are clearly directed to statutory subject matter consistent with the holdings of State Street Bank & Trust Co. v. Signature Financial Group Inc., since each is directed to a method (a "process" as recited in 35 U.S.C. 101) that produces a "useful, concrete and tangible result" (determination of the performance of a financial portfolio relative to a benchmark). As noted above, the claimed method accomplishes a performance attribution computation that compares the returns of a financial portfolio against those of a benchmark to determine the portfolio's performance relative to the benchmark, and does so in a manner that accurately attributes the determined performance to various effects resulting from active decisions by the portfolio manager. Further, each of new claims 9-12 is limited to include the steps of generating data of a specified type and processing the data to generate other data of another specified type (generation of the latter data unambiguously being a useful, concrete and tangible result). The "portfolio performance" result recited in claims 1-4 and 9-12 is concrete and tangible in that it quantifies how well a financial portfolio has been managed relative to a specified benchmark over multiple time periods (e.g., by determining that the performance of a

portfolio is "X%" of one specified benchmark over the last "Z" months, and "Y%" of another specified benchmark over the same period). As noted, the fact that a portfolio performance result is useful is evidenced by the flourishing market in this country for asset management software and services that determine portfolio performance in response to specified returns of a financial portfolio over multiple time periods.

Also consistent with the noted holdings of State Street Bank & Trust Co. v. Signature Financial Group Inc., claims 7 and 8 are clearly directed to statutory subject matter since each is directed to a computer readable medium (a "manufacture" as recited in 35 U.S.C. 101) which is unambiguously useful since it "stores code for programming a processor." The claimed computer readable medium is also useful since (as explained in the specification) the code stored thereby is useful for programming a processor to perform a performance attribution computation that usefully compares the returns of a financial portfolio against those of a benchmark and determines the excess return (performance relative to the benchmark) in a manner that accurately attributes the excess return to various effects resulting from active decisions by the portfolio managers.

The cases cited by the Examiner, In re Schrader, 30 USPQ2d 1455 (Fed. Cir. 1994) and In re Warmerdam, 31 USPQ2d 1754 (Fed. Cir. 1994), do not imply a contrary result since the claims held to be non-statutory in those cases are very different from the rejected claims (and new claims) of the present application.

The claims held to be non-statutory in In re Warmerdam are method claims to a method for "generating a data structure which represents the shape of [a] physical object... as a hierarchy of bubbles" by manipulating mathematical constructs, and a claim to a "data structure" generated by any of the method claims. The Court of Appeals for the Federal Circuit characterized the recited bubble "hierarchy" as an abstract mathematical construct and held that the supporting specification made it clear that the recited "data structure" denoted merely "ideas reflected in the process of making" an abstract mathematical construct (namely the bubble "hierarchy"). In contrast, the Court noted that another claim of the same patent (to a "machine having a memory which contains data representing a bubble hierarchy generated by the

method” of any of the method claims) was clearly directed to patentable subject matter.

Consistent with In re Warmerdam, claims 5 and 6 are clearly directed to statutory subject matter since each recites a computer system including a programmed processor and a display device coupled to the processor; not a method or data structure.

Consistent with In re Warmerdam, claims 7 and 8 are clearly directed to statutory subject matter since each is directed to a computer readable medium (a “manufacture” as recited in 35 U.S.C. 101) that “stores code for programming a processor;” not a method or data structure.

Consistent with In re Warmerdam, claims 1-4 and new claims 9-12 are clearly directed to statutory subject matter since each recites a method that produces a useful, concrete and tangible result; not a method that merely produces an abstract mathematical construct (such as a bubble “hierarchy”) or “ideas reflected in the process of making” an abstract mathematical construct. Claims 9-12 are expressly limited to require generation of data of a specified type and processing of this data to generate other data indicative of performance of a financial portfolio relative to a benchmark. It cannot reasonably be contended that the data generation and data processing steps of claims 9-12 are mere manipulation or origination of abstract ideas, or solution of a purely mathematical problem without any limitation to a practical application. As noted above, the method of each of claims 1-4 compares the returns of a financial portfolio over multiple time periods against those of a benchmark to generate a useful, concrete and tangible result (determination of the performance of the financial portfolio relative to the benchmark). It cannot reasonably be contended that the method of any of claims 1-4 and 9-12 merely manipulates abstract ideas (or merely produces an abstract mathematical construct, or merely solves a purely mathematical problem without any limitation to a practical application) because each claimed method, on the contrary, determines the performance of a financial portfolio relative to a specified benchmark over multiple time periods (a useful, concrete, and tangible result; not an “abstract” mathematical concept) thus quantifying how well the portfolio manager

has managed the portfolio over such time periods (so that each claim is limited to a practical application).

The claims held to be non-statutory in In re Schrader are method claims to a method of “competitively bidding on” items including such steps as “identifying” the items, “offering [the] items to ... potential bidders,” “receiving bids” from bidders, “entering said bids in a record,” “assembling a completion of all said bids,” and “identifying in said record” the bids corresponding to a prevailing total price. The Court held that such claims are not directed to statutory subject matter since they are directed to a mathematical algorithm that “except for incidental changes to a ‘record,’ do not reflect any transformation or conversion of subject matter representative of or constituting physical activity or objects.” See 30 USPQ2d 1459.

Consistent with In re Schrader, claims 5 and 6 are clearly directed to statutory subject matter since each recites a computer system including a programmed processor and a display device coupled to the processor; not a method.

Consistent with In re Schrader, claims 7 and 8 are clearly directed to statutory subject matter since each is directed to a computer readable medium (a “manufacture” as recited in 35 U.S.C. 101) that “stores code for programming a processor;” not a method.

Consistent with In re Schrader, claims 1-4 and new claims 9-12 are clearly directed to statutory subject matter since each is directed to a method that produces a useful, concrete and tangible result; not a mathematical algorithm that fails to “reflect any transformation or conversion of subject matter representative of or constituting physical activity or objects.” The “returns” (of a financial portfolio) that are recited in each of claims 1-4 and 9-12 are representative of physical activities such as the portfolio manager’s sale and purchase of physical objects and/or financial instruments (to add them to or delete them from the portfolio) during the relevant time periods, and the payment of interest or dividends into the portfolio during the relevant time periods. Claims 1-4 and 9-12 require the transformation (and thus “reflect” the transformation or conversion) of such returns into the “portfolio performance” result

recited therein. The portfolio performance recited in claims 1-4 and 9-12 determines the portfolio's excess return in a manner that accurately attributes the excess return to various effects resulting from active decisions by the portfolio manager, and thus the recited portfolio performance is also representative of physical activity.

Further, each of new claims 9-12 is limited to include the steps of generating data of a specified type and processing the data to generate other data of another specified type (generation of the latter data unambiguously being a useful, concrete and tangible result). The Court in In re Schrader explicitly based its decision on its finding that, for each claim in suit, "we do not find in the claim any kind of data transformation" [30 USPQ2d at 1458]. Claims 9-12 are clearly directed to statutory subject matter, consistent with the holding In re Schrader.

For the foregoing reasons, Applicant respectfully requests reconsideration and allowance of claims 1-8, and allowance of new claims 9-12.

Respectfully submitted,

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